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Serial No. : **10/805318**  
Applicant : Dikken  
Filing date : March 22, 2004  
Title : Fueling Nozzle Device  
TC/A.U. : 3752  
Examiner :  
Docket No. : **5419**  
Customer No. : 26936

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

**PRIORITY DOCUMENT**

Sir:

Transmitted herewith is a certified copy of Canadian Application No.  
2444131, filed October 9, 2003, priority of which is hereby claimed under 35 U.S.C.  
§119.

Respectfully submitted,

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October 5, 2004



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the Patent Office.

Specification and Drawings, as originally filed, with Application for Patent Serial No:  
**2,444,131**, on October 9, 2003, by **KARDECH INCORPORATED**, assignee of  
Mark P. Dikken, for "Spill Prevention Nozzle Adapter".

**CERTIFIED COPY OF  
PRIORITY DOCUMENT**

*Gregory P. Bush*  
Agent certificateur/Certifying Officer

August 6, 2004

Date

Canada

(CIPO 68)  
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## ABSTRACT

Spill prevention nozzle adapter was designed to fulfill the need for better spill prevention at high speed card lock refueling stations. Mounts to existing 1" high flow nozzles in the industry. All parts are constructed of stainless steel. Consists of flange asm., hinge asm, arm and collar. Its arm and hinge are tempered to achieve a spring type hardness when nozzle is inserted into tank the arm can be lowered to enter the tank with spout. When the device is used it allows the energy of hydraulic fluctuations and hose and nozzle movements to be absorbed by the device thus lowering the potential for a spill considerably. Also making better electrical contact to tank/truck. The weight percentages of hose/nozzle/swivel, etc is counter balanced in the arm eliminating ridged contact. Vibrations, movements etc are absorbed.

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## DESCRIPTION OF SPILL PREVENTION NOZZLE ADAPTER

Spill prevention nozzle adapter is designed for the petroleum industry and was created to help control the nozzle when fueling. After reviewing existing nozzles on the market today, we found that the construction to be pretty much the same at spout area. A typical nozzle spout is constructed of a cast aluminum main body with steel spring which sleeves over it. This spring is to help the nozzle hold in the tank but note: The spring is of coil design and does not make contact to inner ring very well. Also there is no way to absorb any energy of movement at hose or nozzle, as it is rigid in its design. OPW Dover Corporation has 1" (7H or 7HB) style nozzle for high speed fueling. They also have a 1290 nozzle which is 1 1/4" and 1 1/2" type but are not used due to their cumbersome construction, reliability and cost. Husky has the 1" high speed nozzle that has the same construction as Dover but is bolt pattern is oriented backward at its flanging point.

The spill prevention nozzle adapter is designed with stainless steel material due to its reliable construction material and will not corrode or break easily. Material can be tempered to a desirable degree. Electrical properties are good when in contact with the tank. The collar is designed to hold hinge asm and arm, this to accommodate the force (energy) produced when arm carries weight of nozzle, hose, swivels, etc. counter leverage at pivot point of hinge, taking away from actual spout. The arm has holding points for all styles of tanks and screen devises. Arm to be tempered so it now can absorb energy from movements behind it. Arm has rounded holding points on top surface to hold in tank fill rim. Rounded so they provide a directionary curve in case of a drive-off with nozzle still in truck tank. Tip carries a nub for screened tanks, also round in design. The stainless steel hinge provides low profile and small construction giving the upmost in strength and durability. Hinge is to accommodate tank types. If the devise cannot be used in certain tanks, the user can flip it back allowing spout to enter tank. Pivot point at arm where hinge is fastened is located as far back on the spout as possible (stress point on spout is minimal). To install this adapter you remove the two upper mounting screws on spout flange, the adapter is then slipped over the main part of the spout and re-bolted to nozzle at spout flange.

By installing this adapter on all nozzles you will be reducing the amount of environmental hazards considerably, improved grounding at vehicle to pump, energy absorbing to erratic movements, holding adaptability to various tank styles, protection of valve cap assemble from damage when nozzles are moved from one side of vehicle to other, strength durability and spout wear reduced giving it a longer life span.

The number one cause for spills is driver negligence. By-law, TSSA requires all personnel fueling vehicles to be in direct attendance at fueling point. This by-law is great in theory but lacks in practically. TSSA moved to not allowing hold-open clips on 7H style nozzles hoping this would elevate spill frequency and at the same time backing up the by-law. E.g.: If a spill occurs, how could the driver have not been standing there, as this incident occurred without a hold-open clip (but by obstructing handle to drop with foreign material). Please note: Unattended card lock facilities or even attended – there are no individuals standing there nor watching the video monitor to catch drivers after they spill. Preventing spills is the priority - High volume refueling differs from retail fueling. Retail fueling completes in a matter of a few minutes. High volume fueling results in unattended nozzle use due to filling time of the average 300 to 1000 litres.

Environmental spills of any product or substance can be reduced by means of knowledge of equipment operations and their environments.

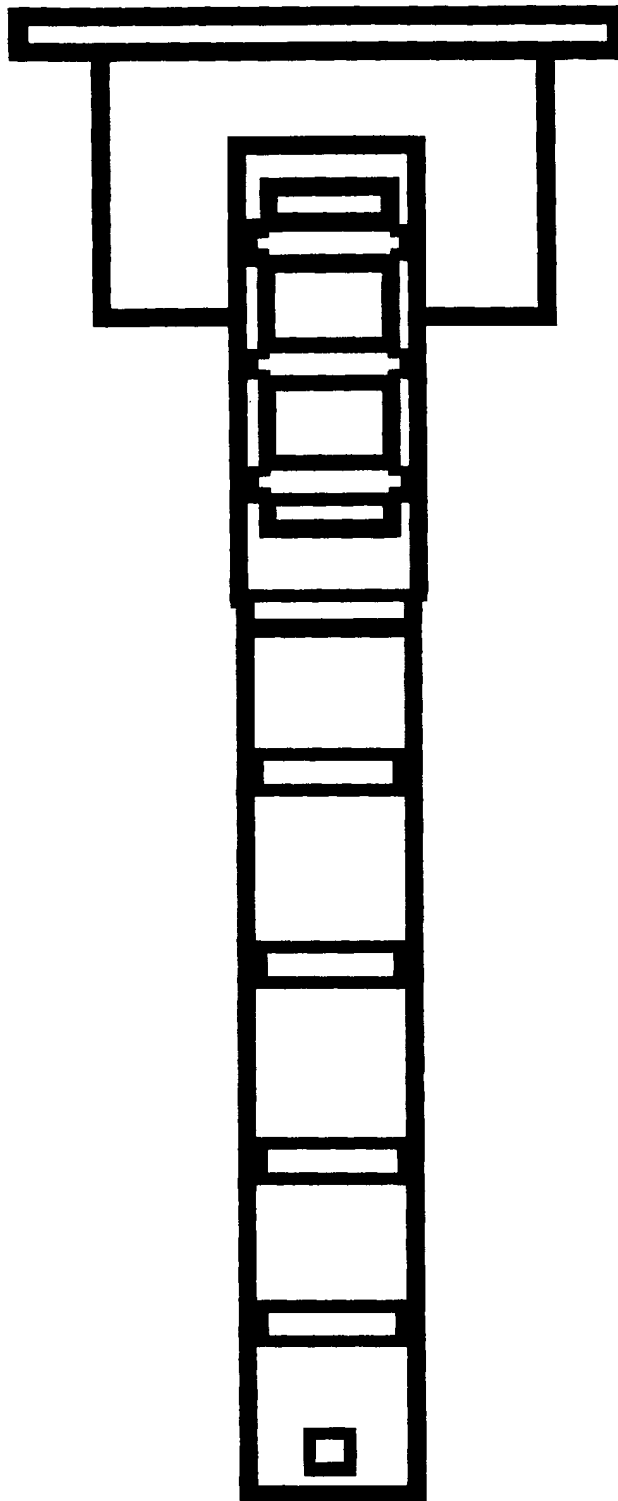
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## CLAIMS OF SPILL PREVENTION NOZZLE ADAPTER

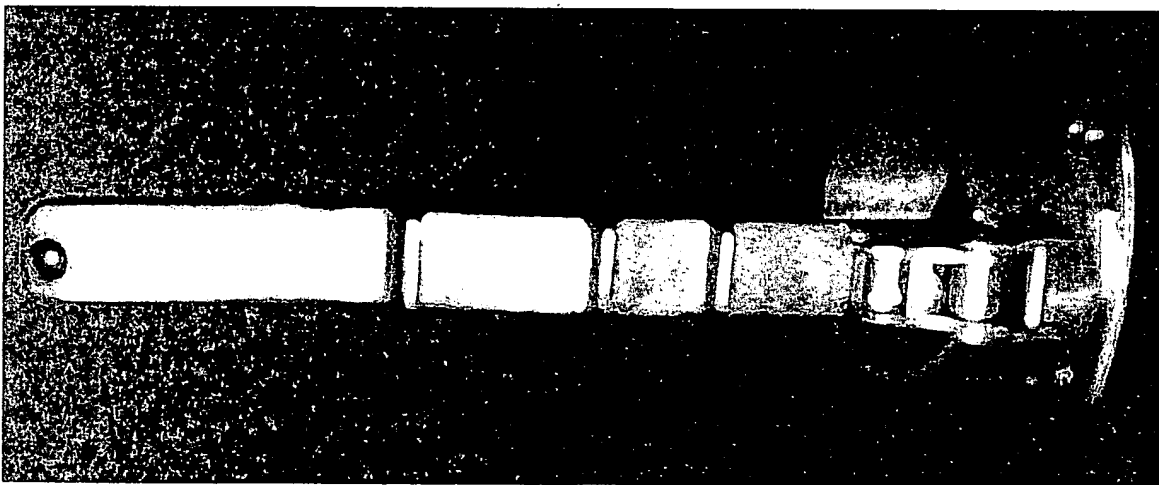
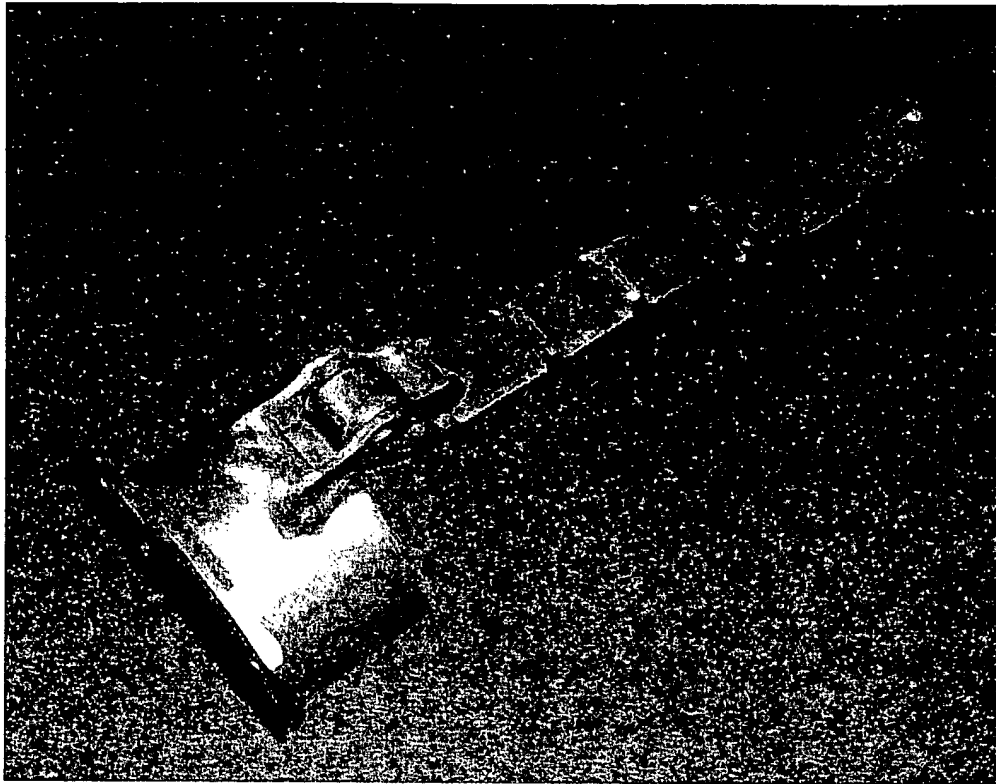
The spill prevention nozzle adapter consisting of:

- Improved grounding at vehicle to pump.
- Energy absorbing to erratic movements.
- Holding adaptability to various tank styles.
- Protection of valve cap assemble from damage when nozzles are moved from one side of vehicle to other. Applies to non satellite sites.
- Environmental hazards reduced considerably.
- Accommodate all tank styles.
- Used on all 1" type nozzles.
- Designed with stainless steel material reliable construction material and will not corrode or break easily.
- Spout wear reduced giving it a longer life span.

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